Eastern Gulf.—1st, 20th, 27th, 28th.
Western Gulf.—1st, 3d to 6th, 12th, 17th to 21st, 25th to 28th.
Rio Grande valley.—4th, 5th, 7th, 17th, 18th.
Tennessee.—1st, 2d, 4th to 10th, 17th to 21st, 25th to 28th.
Ohio valley.—1st, 2d, 4th to 10th, 12th, 13th, 17th to 21st, 23d, 26th, 27th.
Lower lakes.—1st, 5th, 6th, 8th, 10th, 12th, 13th, 23d.
Upper lakes.—1st to 28th.
Extreme northwest.—1st to 28th.
Upper Mississippi valley.—1st to 28th.
Missouri valley.—1st to 28th.
Northern slope.—1st to 28th.
Middle slope.—1st to 7th, 9th, 10th, 12th, 13th, 14th, 20th to 23d, 25th to 28th.
Southern slope.—3d, 4th, 5th, 8th, 11th, 17th to 20th.
Southern plateau.—1st to 12th, 14th to 26th, 28th.
Middle plateau.—3d, 4th, 5th, 7th to 14th, 16th to 28th.
Northern plateau.—1st to 14th, 16th, 17th, 20th, 23d to 28th.
North Pacific.—1st to 11th, 14th to 17th, 23d to 26th, 28th.
Middle Pacific.—1st to 12th, 15th to 20th, 27th.
South Pacific.—2d to 12th, 15th to 19th.

ICE.

The subject of the formation of ice in the northern sections is considered elsewhere in the REVIEW under the heading "Ice in Rivers and Harbors." The following are exceptional cases of ice-formation in the southern sections of the country:—

California.—Los Angeles, 1st, 3d, 4th, 6th, 9th, 10th, 17th; Red Bluff, 3d, 4th; Sacramento, 4th to 12th, 15th to 18th; San Francisco, 5th, 6th.

Texas.—Galveston, 5th, 6th, 18th; Indianola, 4th, 5th, 17th, 18th; San Antonio, 4th, 5th.

PRECIPITATION.

[*Expressed in inches.*]

The distribution of rainfall over the United States and Canada, as determined from observations taken at more than five hundred stations, is exhibited on chart iv.

From the south Atlantic coast westward to Texas, in the extreme northwest, and in all districts west of the Rocky mountains, excepting the southern plateau, the rainfall of the month has been below the average of February. The deficiencies are very marked in the middle and north Pacific coast regions, where they are 3.80 and 5.40, respectively, and also in Florida and the east Gulf states, where the deficiency is more than two inches. East of the Rocky mountains and north of the thirty fifth parallel, excepting the extreme northwest, the rainfall has been above the average, the districts of greatest excess being the upper Mississippi and Ohio valleys and the lower lake region.

Table of Excessive, Greatest, and Least Monthly Rainfalls.

STATION.	Specially Heavy.			Largest Monthly.	Smallest Monthly.	
	Date.	Amt.	Duration	Amount.	STATION.	Amt.
Alabama.					*Arizona.*	
Mobile	23, 24	2.39			Maricopa	0.00
Arkansas.					Texas Hill	0.14
Little Rock				6.47	San Simon	0.35
Fort Smith	23, 24	2.53			Pantano	0.41
California.					*California.*	
Los Angeles	13, 14	2.42			Tulare	0.15
Connecticut.					Goshen	0.17
New London				6.02	Williams	0.18
Illinois.					Modesto	0.20
Charleston	2, 3	5.10		9.10	Galt	0.21
Cairo				8.52	Princeton	0.23
Mattoon	2	2.74		8.20	Willows	0.23
Anna	3, 4	2.72		8.19	Byron	0.25
Elmira				7.63	Brentwood	0.26
Springfield	2, 3	1.40		7.53	Chico	0.27
Bunker Hill				7.42	Orland	0.27
Swanwick	2, 3	2.70		6.66	Lathrop	0.28
Mascoutah				6.32	Niles	0.30
Morrison	15, 16	2.66			White Water	0.34
Riley	16	2.23			Dunnigan	0.35
Collinsville	1	2.00			Redding	0.36
Indiana.					Red Bluff	0.39
Dana	3	6.05		10.93	Tehama	0.39
Gosport	4	5.00		9.90	Turlock	0.39
Kokomo	4	5.62		9.85	Brighton	0.40
Frankfort	3	4.96		9.60	Delano	0.40
Wabash	3, 4	4.50		9.59	Marysville	0.40
Wabash	17	2.26			Tracy	0.40
Worthington				9.24	Kingsburg	0.45
Union City	3	3.00		9.23	Stockton	0.45
Laconia	7, 8	2.75		8.96	Woodland	0.45
Do.	10, 11	2.25			*Colorado.*	
Mitchell	3	3.00		8.82	Fort Garland	0.30
Do.	14	2.00			Denver	0.45
New Albany	6	2.73		8.35	Pike's Peak	0.49
Griffin Station	3, 4	3.08		8.31	Fort Lewis	0.50
Rushville	4	2.21		8.31	*Dakota.*	
Shelbyville				8.23	Fort Stevenson	0.12
Marengo	6	2.05		8.13	Fort Yates	0.12
Spiceland	3	3.78		8.06	Rapid City	0.20
Martinsville	4	4.00		7.96	Smithville	0.23
Vernon	3	2.21		7.94	Fort Meade	0.30
Laporte	2	2.92		7.86	Fort Buford	0.36
New Harmony				7.85	Fort Sully	0.44
Hanover	7	2.00		7.80	Huron	0.47
Franklin	4	3.50		7.78	*Florida.*	
Danville	3	3.07		7.74	Sanford	0.00
Wells				7.72	Punta Rassa	0.01
Vincennes	4	3.24		7.69	Cedar Keys	0.04
Blue Lick				7.66	Saint Augustine	0.36
Evansville	3	2.00		7.61	Jacksonville	0.48
Connerville	3	2.50		7.56	*Minnesota.*	
Vevay	6, 7	2.00		7.56	Saint Vincent	0.24
Huntingburg				7.53	Fort Snelling	0.30
La Grange	17	3.00		7.50	Saint Paul	0.44
Montgomery	3	5.20		7.50	*Montana.*	
Degonia Springs				7.43	Terry's Landing	0.05
Lafayette	3	2.95		7.43	Fort Custer	0.09
Do.	14	2.28			Fort Keogh	0.11
Salem	3, 4	2.95		7.32	Deer Lodge	0.21
Dale				6.02	New Chicago	0.27
Greensburg	3	2.90		6.40	Fort Shaw	0.31
Monticello	3	4.35		6.27	Fort Benton	0.45
Huntington	3	4.00			Billings	0.49
Indianapolis	3	2.50			*Nebraska.*	
Jeffersonville	6	2.38			Fort Niobrara	0.40
Logansport	3	2.35			*Nevada.*	
Fort Wayne	3, 4	4.02		5.80	Brown's	0.05
Iowa.					Elko	0.05
Keokuk	16	3.56		6.13	Hot Springs	0.10
Muscatine	15, 16	3.01			Tecoma	0.15
Davenport	16	2.90			Pioche	0.28
Kentucky.					Otego	0.40
Bowling Green	7	2.25		12.10	Palisade	0.40
Do.	11	4.87			Golconda	0.45
Frankfort				10.15	*New Mexico.*	
Louisville	6	2.21		8.72	Lordsburg	0.37
Do.	10, 11	2.23			*Texas.*	
Louisiana.					Concho	0.00
Point Pleasant	11, 12	2.71		11.56	Laredo	0.00
Do.	17	2.10			Fort Davis	0.02
Do.	22, 22, 24	6.52			San Antonio	0.33
Shreveport	11, 12	1.95		7.24	El Paso	0.40
Do.	16, 17	1.80			*Utah.*	
Michigan.					Kelton	0.05
Coldwater				7.39	Blue Creek	0.10
Marshall				6.11	Terrace	0.10
Grand Haven	16	2.23			Promontory	0.20
Mississippi.					Ogden	0.33
Starkville	24, 24	2.79		8.41	*Washington.*	
Vicksburg	12	2.11		6.70	Almota	0.28
Do.	23, 24	3.14			*Wyoming.*	
Missouri.					Cheyenne	0.25
Protem				8.19		
Centreville				6.95		
Pierce City	13	2.70		7.65		
Ironton				7.45		
Saint Charles				7.10		
Saint Louis	2, 3	2.17				
New Jersey.						
Vineland				6.46		
New York.						
Albany	4	2.00				
North Carolina.						
Charlotte	17, 18	2.63				
Ohio.						
Cincinnati				8.22		
North Lewisburg	3	2.50		8.20		
Portsmouth	10, 11	2.81		8.03		
College Hill				7.50		
Jacksonburg	3	2.50		7.40		
Columbus				7.19		
Cleveland	3	3.62		6.77		
Ruggles	2, 3, 4	3.50				
Toledo	3	2.26				
Oregon.						
Fort Stevens	12, 13	2.60		8.28		
Do.	17, 18, 19	4.76				
Pennsylvania.						
Meadville	3, 4	4.50		8.90		
Grampian Hills				6.85		
Franklin	11, 12	4.12	24 hours			
Tennessee.						
Memphis	10, 11	2.08		8.09		
Nashville	6, 7	2.18		7.89		
Austin	6	2.65		7.50		
Murfreesborough				7.48		
Ashwood				7.00		
Washington Territory.						
Fort Canby				6.60		
West Virginia.						
Helvetia	10, 11	2.80		8.18		
Morgantown	6, 7	2.13		7.07		

In the first column of the following table is given the average February precipitation in the various districts for several years; in the second column is given the average for February, 1883; and the third column shows the excess or deficiency of February, 1883, as compared with the average of previous years:—

Average precipitation for February, 1883.

Districts.	Average for February. Signal-Service observations.		Comparison of Feb., 1883, with the average for several years.
	For several years.	For 1883.	
	Inches.	*Inches.*	*Inches.*
New England	3.66	4.44	0.78 excess.
Middle Atlantic states	3.08	4.46	1.38 excess.
South Atlantic states	4.21	2.43	1.78 deficiency.
Florida peninsula	2.54	0.33	2.21 deficiency.
Eastern Gulf	5.40	3.23	2.17 deficiency.
Western Gulf	3.63	3.03	0.60 deficiency.
Rio Grande valley	1.21	0.47	0.74 deficiency.
Tennessee	5.16	5.69	0.53 excess.
Ohio valley	3.40	7.26	3.86 excess.
Lower lakes	2.20	3.94	1.74 excess.
Upper lakes	1.69	2.54	0.85 excess.
Extreme northwest	0.67	0.56	0.11 deficiency.
Upper Mississippi valley	2.01	3.59	1.58 excess.
Missouri valley	0.89	1.47	0.58 excess.
Northern slope	0.38	0.56	0.18 excess.
Middle slope	0.37	0.45	0.08 excess.
Southern slope	1.20	1.35	0.15 excess.
Northern plateau	2.67	1.23	1.44 deficiency.
Middle plateau	0.96	0.50	0.46 deficiency.
Southern plateau	0.78	0.99	0.21 excess.
North Pacific	7.15	1.75	5.40 deficiency.
Middle Pacific	4.65	0.85	3.80 deficiency.
South Pacific	2.06	1.41	0.65 deficiency.
Mount Washington, N. H.	3.71	5.65	1.94 excess.
Pike's Peak, Colo.	1.42	0.49	0.93 deficiency.

DEVIATIONS FROM AVERAGE PRECIPITATION.

The departures exhibited by the reports from the regular Signal-Service stations are shown in the above table of average precipitation. The Chief Signal Officer is indebted to voluntary observers for the following notes upon this subject. These comparisons are of special interest, as many of the records from which they are made cover long periods, some extending back many years before the establishment of the Signal Service:—

Illinois.—Anna, monthly rainfall, 8.19, or 4.30 above the February average of last seven years, and is 0.02 above that of February, 1882. Riley, monthly rainfall, 8.79, or 3.52 above the February average of last nineteen years.

Indiana.—Logansport, monthly rainfall, 5.76, or 2.81 above the February average of the past twenty-four years, and is, with the exception of 7.40 in 1881, the largest February rainfall of that period. The amount of snowfall, 8.65, is 1.95 below the average of February. Vevay, monthly rainfall, 7.56, or 4.24 above the February average. Only 1.00 of snow fell during the month, which is 7.10 below the average.

Kansas.—Wellington, monthly rainfall, 3.73, is 3.02 above the February average of the last four years. Yates Centre, monthly rainfall, 2.88, or 0.48 above the February average of three preceding years. The rainfall of the past winter is 0.46 above the winter average of the same period. Lawrence, Professor F. H. Snow of the state university, reports monthly rainfall, 2.31, or 1.05 above the February average of last sixteen years. The largest February rainfall of that period, 4.60, was that of 1881; the smallest, 0.19, was that of 1868. The snowfall of the month, 4.00, is 0.49 below the February average. In February, 1881, the monthly snowfall was 22.00; in 1870 and 1880, no snow fell during the month, and less than 1.00 fell during February in 1868 and 1876.

Maine.—Gardiner, monthly rainfall, 2.89, or 0.43 below the February average of forty-seven years.

Maryland.—Fallston, monthly rainfall, 5.20 or 1.76 above the February average of the last twelve years. The largest February rainfall of that period, 5.65, occurred in 1881; the smallest, 1.50, occurred in 1872.

Missouri.—Saint Louis, the Missouri Weather Service reports monthly rainfall, 6.27, or 3.80 above the February average. This amount has been exceeded in but three Februarys since 1839; viz.: 6.74 in 1851; 7.74 in 1857, and 7.21 in 1882. These months were all warm.

New Hampshire.—Antrim, monthly rainfall, 4.80, is 1.34 above the February average of ten years. The monthly snowfall, 26.5 inches, is 7.38 below the average. Grafton, monthly rainfall, 3.23, is 0.47 below the average of the last three years. The monthly snowfall, 33 inches, is about 11 more than the average.

New York.—North Volney, monthly rainfall, 3.10, or 0.38 above the February average of the last eleven years. The greatest February rainfall of that period was 4.70, in 1876; the least, 0.30, in 1877. Palermo, monthly rainfall, 3.01, is 0.20 above the February average of the last thirty years. During that period, the largest February rainfall, 7.20, was that of 1866; the smallest, 0.10, was that of 1877.

Vermont.—Woodstock, monthly rainfall, 3.20, is 0.56 above the February average of the last fourteen years. During that period, the largest February rainfall, 5.21, occurred in 1870; the smallest, 0.30, occurred in 1877. The monthly snowfall, 26 inches, is 4.97 above the February average of fourteen years. The largest February snowfall, 36.85, occurred in 1876; the smallest, 0.85, occurred in 1877.

Virginia.—Variety Mills, monthly rainfall, 2.74, is 0.10 below the February average of the last four years. Wytheville, monthly rainfall, 3.34, or 0.06 below the February average of a period of eighteen years.

The following table shows the greatest and least number of rainy (upon which rain fell) and cloudy days, and the percentages of mean relative humidity, as reported from the various districts:—

Table of rainy and cloudy days and relative humidity for February, 1883.

Districts.	Rainy days	Cloudy days.	Relative humidity.*
			Percentages.
New England	From 12 to 23	From 5 to 8	From 63.7 to 92.5
Middle Atlantic states	" 10 " 20	" 4 " 12	" 61.8 " 79.8
South Atlantic states	" 5 " 18	" 4 " 12	" 70.3 " 86.6
Florida peninsula	" 2 " 10	" 3 " 5	" 74.5 " 79.0
Eastern Gulf	" 7 " 18	" 8 " 13	" 69.4 " 81.4
Western Gulf	" 2 " 17	" 7 " 19	" 68.6 " 86.5
Rio Grande valley	" 6 " 14	Seventeen	" 63.1 " 82.6
Ohio valley and Tennessee	" 12 " 18	From 8 to 18	" 64.7 " 79.6
Lower lakes	" 13 " 26	" 11 " 18	" 68.7 " 83.6
Upper lakes	" 11 " 21	" 6 " 13	" 61.5 " 86.1
Extreme northwest	" 5 " 9	" 4 " 7	" 81.5 " 87.5
Upper Mississippi valley	" 9 " 16	" 4 " 15	" 59.0 " 86.0
Missouri valley	" 8 " 13	" 6 " 10	" 61.8 " 76.5
Northern slope	" 2 " 9	" 2 " 7	" 52.1 " 89.1
Middle slope	" 3 " 10	" 0 " 6	" 49.1 " 83.9
Southern slope	" 3 " 12	" 3 " 16	" 50.8 " 76.8
Southern plateau	" 3 " 16	" 2 " 10	" 50.0 " 97.8
Middle plateau	Eight	" 3 " 4	" 55.7 " 58.8
Northern plateau	From 1 to 12	" 0 " 8	" 70.7 " 79.5
North Pacific	" 8 " 12	" 5 " 7	" 69.8 " 75.1
Middle Pacific	" 1 " 11	" 1 " 4	" 59.5 " 77.1
South Pacific	" 5 " 10	" 3 " 6	" 51.4 " 64.6

* Relative humidity corrected for altitude.

HAIL.

The dates on which hail has been reported are as follows:—

Arizona.—Fort Grant, 20th; Tucson, 20th.

California.—Sacramento, 20th. A heavy hail storm, with thunder and lightning prevailed from 12.30 to 1.30 p. m., some of the hail being one-fourth of an inch in diameter; Cape Mendocino, 1st, 2d; Princeton, 3d; Sacramento, 1st, 14th; Salinas City, 14th; San Francisco, 13th, 14th.

Illinois.—Bunker Hill, 2d, 3d, 6th.

Indiana.—Vevay, 16th.

Iowa.—Indianola, 3d; Monticello, 15th.

Kansas.—Fort Riley, 15th; Fort Scott, 2d, 3d, 10th, 16th; Holton, 15th; Lawrence, 21st; Leavenworth, 2d; Manhattan, 15th; Yates Centre, 1st 2d, 12th, 16th.

Maine.—Cornish, 25th.

Massachusetts.—Westborough, 3d, 7th.

Michigan.—Lansing, 3d.

New Hampshire.—Bristol, 4th.

New Jersey.—Barnegat City, 5th; Moorestown, 6th, 24th; Vineland, 5th.

New York.—Ardenia, 7th; Hector, 16th; Factoryville, 3d, 24th.

North Carolina.—Brevard, 22d; Highlands, 22d; Life-saving Station No. 6, 18th.

Ohio.—College Hill, 17th; Jacksonburg, 10th; Margaretta, 14th.

Oregon.—Albany, 17th.

Pennsylvania.—Dyberry, 3d; Grampian Hills, 5th, 24th.

Rhode Island.—Newport, 18th; Point Judith, 18th.

South Carolina.—Aiken, 14th, 15th.

Texas.—Uvalde, 4th, 5th, 17th, 27th.

It is probable that some of the above reports are incorrect, and should have been recorded as sleet instead of hail.

SNOW.

The dates on which snow is reported to have fallen in the various districts are as follows:—

New England.—1st to 12th, 14th to 28th.

Middle Atlantic states.—1st to 7th, 10th, 11th, 12th, 14th to 18th, 20th, 21st, 22d, 24th to 28th.

Western Gulf.—3d to 6th, 17th, 18th.

Rio Grande valley.—5th, 17th, 18th.

Tennessee.—4th to 7th, 16th, 17th, 18th.

Ohio valley.—4th to 7th, 10th, 11th, 12th, 17th, 18th, 20th, 22d, 25th, 26th, 27th.

Lower lakes.—1st to 7th, 9th to 12th, 14th to 28th.

Upper lakes.—1st to 11th, 14th to 28th.

Extreme northwest.—1st, 2d, 3d, 8th, 10th, 14th, 15th, 16th, 19th to 24th.

Upper Mississippi valley.—1st to 4th, 6th, 7th, 10th, 11th, 14th, 16th, 17th, 19th, 21st to 24th, 27th.

Missouri valley.—1st, 2d, 3d, 6th, 7th, 10th, 11th, 13th, 15th, 16th, 20th to 26th.

Northern slope.—1st, 2d, 5th to 8th, 13th to 16th, 18th, 20th, 21st, 23d, 24th.

Middle slope.—1st, 2d, 3d, 6th, 7th, 10th, 11th, 13th to 16th, 22d, 23d, 24th.

Southern slope.—3d to 6th, 15th, 16th, 23d, 26th.

Southern plateau.—6th, 9th, 10th, 12th, 13th, 15th, 16th, 20th, 22d, 24th, 26th.

Middle plateau.—1st, 2d, 3d, 5th, 6th, 7th, 14th, 15th, 28th.

Northern plateau.—1st, 6th, 7th, 8th, 10th, 12th to 15th, 17th, 18th, 19th, 21st.

North Pacific.—1st, 11th to 15th.

Middle Pacific.—1st, 2d, 4th, 6th.

Snow also fell in the following states not included in the districts named above:—

California.—Los Angeles, on mountains, 15th; Visalia, 2d, 5th.

Georgia.—Augusta, 18th.

North Carolina.—Highlands, 22d; Murphy, 5th, 11th, 18th, 24th.

The following are reports of unusually heavy snow-storms which occurred during the month:—

Dubuque, Iowa, 1st.—The roads in this vicinity are impassable, snow being drifted over them in places to a depth of eight feet. 2d: Snow blockades exist on all wagon roads and steam railways in the surrounding country. The Chicago, Milwaukee, and Saint Paul trains, both north and south, are delayed from three to six hours. The eastern division of the Illinois Central railroad is also badly blockaded; and on the western division travel is entirely suspended, no trains having arrived from Sioux City, Iowa, since January 27th. Interruption to travel by blockades continued on the 3d and 4th, and on the 27th, trains from points east and west were again delayed by snow and sleet.

Davenport, Iowa, 1st.—Heavy snow-storm, causing delay of trains. 2d: All travel suspended on the Chicago, Milwaukee, and Saint Paul railroad; no freight trains are run on the Chicago, Burlington, and Quincy road; and the Minneapolis train on the Chicago, Rock Island, and Pacific road was unable to make trips. 4th: All railroad travel resumed, and trains again running on time.

Omaha, Nebraska, 2d.—Snow has drifted badly, but travel has been continued on all railroads except the Saint Paul and Omaha. The snow in the western counties is about three feet deep, which, unless removed by winds or a thaw, will cause serious suffering to stock.

Topeka, Kansas, 2d.—A heavy snow-storm has prevailed in western Kansas, but railroad travel has not been seriously delayed.

Cheyenne, Wyoming, 2d.—The heaviest snow-storm ever experienced in this territory has prevailed during the past four days. The snow is three feet deep in this city and from twelve to thirty inches deep on the cattle ranges throughout the territory. There being no wind, the entire surface of the ground is covered. Cattle are suffering for food, and, unless the snow is melted or blown off in places by the wind, great loss to stockmen will result. Trains on the Union Pacific road have been blockaded for the last twenty-four hours.

Lincoln, Nebraska, 3d.—The snow-storm has ended, and snow is six inches deep on the level. The railroads are partly obstructed.

Chicago, Illinois, 2d.—Trains in every direction are interfered with by snow blockades.

Milwaukee, Wisconsin, 2d.—A snow-storm has prevailed all day, causing suspension of traffic on all the northwestern divisions of railroads.

Des Moines, Iowa, 2d.—All north and south roads are blockaded; and, on the Milwaukee road, passenger trains are in the drifts between stations.

Detroit, Michigan, 3d.—The snow and rain-storm was very heavy throughout Michigan. Travel is delayed on the various railroads, and telegraphic communication seriously interrupted.

Austin, Texas, 3d.—A severe snow-storm set in this morning; temperature 12°.

Toronto, Canada, 3d.—From one to three feet of snow fell in western Ontario during last night. Passenger trains are several hours late, and freight trains are abandoned. 10th: Trains on all the main lines are running very irregularly, owing to snow blockades. Many of the branch roads are closed, and passengers and mails are carried by sleighs. At Wingham, the snow-drifts are fifteen feet deep.

Huron, Dakota.—Snow blockades continued on the railroads from the 1st to 4th, 16th, and 17th. On the 18th, trains arrived from the east, but the roads were again blockaded on the 19th and 28th.

Rawlings, Wyoming, 8th.—A stage-coach which left the Pacific Springs on the Sweet-Water line, was caught in the snow-storm of the 2d; some of the occupants perished from the cold, others were badly frozen. Snow is reported to be two feet deep on the level, and cattle are starving.

Watertown, New York, 10th.—The snowfall at this place during the winter has been ten feet, eight inches, and a great part still remains on the ground. Severe snow-storms have lately occurred, causing suspension of travel on the Rome, Watertown, and Ogdensburg railroad for the last two days. The Cape Vincent, and Sackett's Harbor roads have been closed since the 3d. The Utica and Black river road has been closed for several days, but travel was resumed on this date.

Salt Lake City, Utah, 14th and 15th.—The heavy snow-storm of these dates has caused delay of trains, and interruption to business.

Nora Springs, Iowa, 16th.—Trains blockaded by snow; also on 21st.

Grand Turk, Dakota, 16.—A furious snow-storm set in about 1 p. m., which increased in violence until it was impossible to distinguish objects at a distance of one hundred feet. All trains are abandoned; heavy drifts covering the roads.

LARGEST MONTHLY SNOWFALLS.

[*Expressed in inches.*]

The following are the largest monthly snowfalls reported from the various states and territories during the month:—

Colorado.—Pike's Peak, 4.9; Denver, 4.5.

Connecticut.—Southington, 15; Bethel, 12.25; New Haven, about 12.

Dakota.—Deadwood, 13.20; Alexandria, 8; Bismarck, 66; Wicklow, 6.

Idaho.—Eagle Rock, about 15.

Illinois.—Rockford, 13.7; Morrison, 11.5; Chicago, about 10; Polo, 8.33; Peoria, 6; Elmira, 5.13.

Indiana.—New Harmony, 15.5; Logansport, 8.65; Wabash, 4.25.

Iowa.—Nora Springs, 15; Dubuque, about 15; Monticello, 14.75; Logan, 11; Des Moines, about 11; Muscatine, 10; Keokuk, about 9.5 Cresco, 7.5; Davenport, 7.5; Humboldt, 7.45; Ames, 7; Cedar Rapids, 6.75; Indianola, 6.5; Independence, 6; Fort Madison, 4.5.

Kansas.—Salina, 4.

Maine.—Cornish, 33; Eastport, about 30; Gardiner, 24; Portland, about 20; Orono, 13.

Maryland.—Emmittsburg, 10.25; Cumberland, 10; Sandy Springs, 5.35; Woodstock, 4.9.

Massachusetts.—Rowe, 30; Worcester, 24.5 Dudley, 22; Princeton, 21.4; Westborough, 17.25; Amherst, 16.5; Charlestown, 14.5; Fall River, 14; Milton 13; Somerset, 12.5; New Bedford, 12.

Michigan.—Mackinaw City, 25.5; East Tawas, 25; Port Huron, about 23; Traverse City, 17; Ionia, 15.25; Marshall, 15.1; Alpena, 15; Lansing, 14.85; Thornville, 14; Coldwater, 11.75; Hillsdale, 10.55; Marquette, about 10; Litchfield, 5.85; Detroit, about 4.

Minnesota.—Northfield, 13; Minneapolis, 9.19; Moorhead, 7.40; Saint Paul, 4.3.

Missouri.—Corning, 7.5.

Montana.—Helena, 5.5; Fort Benton, 4.5; Billings, 4.5.

Nebraska.—North Platte, 10.2; Stockham, 9.5; Lincoln, 8.75; Utica, 7.03; Valley Home, 6.12; De Soto, 6.10; Omaha, about 6; Clear Creek, 4.75; Genoa, 4; Inavale, 4.

New Hampshire.—Mount Washington, 55.4; Ashton, about 40; Belmont, about 40; Woodstock, about 40; Wolfborough, about 40; Lake Village, 35.7; Grafton, 33; Bristol, 32.9; Contoocookville, 30; Weir's Bridge, 30; New Market, 29; Antrim, 26.5.

New Jersey.—South Orange, 14.5; Freehold, 12.6; Paterson, 12; Moorestown, 11.25; Phillipsburg, 9; Vineland, 4.5.

New York.—Oswego, 25.5; Palermo, 24; Johnsontown, 21.24; Ardena, 19.5; Buffalo, about 18; Albany, 15; White Plains, 13.6; Menand station, near Albany, 13.12; Rochester, about 13; Cooperstown, 12.5; Flushing, 11; Friendship, 10; Mountainville, 9.8; Penn Yan, 8; Factoryville, about 5; North Volney, 4.

Ohio.—Jacksonburg, 7; Canal Dover, 6; North Lewisburg, 6; Westernville, 5.5; Cleveland, 5.2.

Pennsylvania.—Dyberry, 12; Meadville, 11; Erie, about 11; Grampian Hills, 10; West Chester, 9.5; Fallsington, 8.15; Chambersburg, 8; Germantown, 8; Wellsborough, 6.94; Williamsport, about 6; Catawissa, 5.8.

Rhode Island.—Newport, about 19.

Utah.—Salt Lake City, 6.7.

Vermont.—Lunenburg, 34.5; Strafford, 32; Charlotte, 28; Woodstock, 26; Randolph, 17; Newport, 13.5.

Washington Territory.—Dayton, 7.4.

West Virginia.—Helvetia, 4

Wisconsin.—Beloit, 17.4; Milwaukee, about 17; Neillsville, 15.2; Embarrass, 13.5; Franklin, 12.5; Manitowoc, 11.5; La Crosse, 10.5; Ripon, 7.5; Madison, about 4.5.

Wyoming.—Fort Washakie, 6.5.

DEPTH OF UNMELTED SNOW ON GROUND AT END OF MONTH.

[*Expressed in inches.*]

Colorado.—Pike's Peak, 8.

Connecticut.—Bethel, about 3; New Haven, 1.5; New London, trace.

Dakota.—Bismarck, 3; Fort Bennett, trace; Alexandria, trace.

Idaho.—Eagle Rock, 4.

Illinois.—Riley, 8 in woods, drifts in fields; Elmira, drifts in places, most of ground uncovered; Morrison, 1.5; Polo, trace.

Iowa.—Independence, 1 to 40; Cresco, 20; Nora Springs, 13; Monticello, 12; Humboldt, 12; Ames, 9; Cedar Rapids, about 6; Fort Madison, 5.5; Indianola, about 4; Dubuque, 2.5; Des Moines, 2; Muscatine, ground about one-half covered.

Maine.—Gardiner, 26; Orono, 10; Eastport, 9; Portland, 8.

Massachusetts—Worcester, 18 in woods; Rowe, 6; Westborough, 5; Boston, 3; Mendon, 3; Dudley, 2; Provincetown, 3; Charleston, trace; Williamstown, trace.

Michigan.—Marquette, 30; Northport, 24; Traverse City, 20; East Tawas, 18; Mackinaw City, 16; Ionia, 12; Alpena, 11; Escanaba, 6; Litchfield, 3; Grand Haven, 2.5; Lansing, from 1 to 2; Thornville, in drifts; Port Huron, trace.

Minnesota —Moorhead, 12; Saint Paul, 12; Duluth, 10; Saint Vincent, 5; Northfield, in drifts.

Montana.—Fort Keogh, 4; Fort Assinniboine, 3; Helena, 2; Fort Missoula, trace.

Nebraska.—De Soto, 1; Clear Creek, in drifts.

New Hampshire.—Mount Washington, 50; Bristol, 50; Grafton, 30; New Market, 12.

New Jersey.—Paterson, 2.

New York.—Palermo, 34; North Volney, 32 in woods; Johnsontown, 20; Cooperstown, 7; Friendship, 4; Oswego, 4; Ardenia, 3; Rochester, 2.5; Flushing, 1; Hector, 1; Albany, trace; Buffalo, trace; Factoryville, trace.

Ohio.—Cleveland, trace; Toledo, trace.

Pennsylvania.—Grampian Hills, 10; Dyberry, 9 in fields and woods; Wellsborough, 5.2; Meadville, 1.5; Chambersburg, 1; Williamsport, 1; Catawissa, trace.

Oregon.—Umatilla, trace.

Rhode Island.—Newport, 1.

Vermont.—Randolph, 36; Strafford, 36; Woodstock, 26; Charlotte, from 18 to 24.

Wisconsin.—Embarrass, 36; Neillsville, 20; La Crosse, 16; Ripon, 15; Beloit, from 0 to 12; Madison, trace; Milwaukee, trace.

Wyoming.—Fort Washakie, about 7.

SNOW FROM A CLOUDLESS SKY.

Duluth, Minnesota, 10th: snow fell from a cloudless sky at 9.30 p. m.

NATURAL SNOWBALLS.

Professor Samuel Hart, of Trinity College, Hartford, Connecticut, furnished the following interesting report:—

On Tuesday evening (February 20th) a light but damp snow fell upon the crust that had formed over the snow of Sunday's storm; and the south wind which arose at a later hour produced an unusual phenomenon. Wednesday morning the college campus, the park, and vacant lots everywhere hereabouts were seen to be strown with natural snowballs, some of them resembling spheres with diameters of from one to nine inches or more, and others looking very much like rolls of light cotton batting, having a cylindrical shape, but in nearly every case with a conical depression at each end reaching nearly or quite tothe middle. It was easy to see how the balls had been formed, as it is easy to see how boys roll up the snow for their forts. The wind had in each case started a small pellet of the moist snow, and it had rolled along until it grew so large that the wind could move it no further. The ball not only increased in diameter as it rolled, but also grew gradually in length as a little more of the snow stuck to it on each side, and thus the snow was formed into the peculiar shape described—that of a cylinder with a hollow at each end, as if a long isosceles triangle were rolled up, beginning at its vertex. The largest of the cylinders measured on the college campus had a diameter of twelve inches and a length of eighteen inches, while others in the fields in the neighborhood seemed much larger. The path of the balls could in many cases be readily traced for a distance of twenty-five or thirty feet. The snow, it should be added, was not at all closely packed, but lay together very lightly and yielded to a slight touch, so that it was impossible to move a ball without breaking it.

Observers in other parts of the city report that some balls were seen of the size of a barrel which left tracks behind them for more than sixty feet. From East Hartford it is reported that they studded the fields thickly, especially in places where the wind had a long range, and were of every size to that of a half bushel or larger. Similar balls were seen yesterday morning in many places from the Sound north to Massachusetts. All along the line of the Valley railroad they appeared on every rod of ground, and at some places they had left tracks showing that the wind had blown them in every direction, even in some cases up hill.

This interesting phenomenon, though quite unusual, has been noticed before in different places in this country and elsewhere, the most striking instance on record being one which was observed in New Jersey in 1808;

this was in the daytime, when the whole process could be watched. On this occasion some of the masses of snow which were rolled up by the wind attained a diameter of three feet. They appear to have been seen, however, over an area of only some four hundred acres, whereas the snowballs yesterday were spread thickly over many square miles.

The same phenomenon was observed at Southington, Connecticut, by L. Andrews, and at Bethel, of the same state, by Nelson Taylor.

SLEET.

The dates on which sleet is reported to have fallen in the various districts are as follows:—

New England.—3d, 4th, 6th, 7th, 11th, 13th to 16th, 18th, 25th.

Middle Atlantic states.—3d, 5th, 6th, 10th, 11th, 14th, 17th, 18th, 22d, 24th.

Western Gulf.—3d to 6th, 16th, 17th, 18th.

Rio Grande valley.—3d, 4th, 5th, 17th.

Ohio valley.—1st to 12th, 17th, 18th, 24th.

Lower lakes.—2d, 3d, 14th, 15th, 23d, 24th, 25th.

Upper lakes.—2d, 3d, 14th, 16th, 17th, 24th, 27th.

Extreme northwest.—14th.

Upper Mississippi valley.—2d to 7th, 11th, 14th, 16th, 17th, 22d, 24th.

Missouri valley.—3d to 8th, 10th, 17th, 23d, 24th.

Sleet also fell in the followng states and territories not included in the districts named above:—

California.—Cape Mendocino, 1st.

Louisiana.—Point Pleasant, 17th.

Mississippi.—Starkville, 17th, 18th; Vicksburg, 17th, 18th.

Montana.—Fort Benton, 20th.

New Mexico.—Santa Fé, 13th, 22d.

North Carolina.—Ore Knob, 17th.

Oregon.—Portland, 12th; Roseburg, 15th.

The following reports indicate the severity of the sleet-storm which prevailed from the 2d to 4th over eastern Missouri, Illinois, Indiana, northern Ohio, and western New York and Pennsylvania:—

Illinois.—Springfield, 2d: rain, freezing as it fell, continued during the day, and by the afternoon all exposed objects were covered with ice. On the 3d, the streets of the city were strewn with limbs of trees which had been broken off by the weight of ice. All of the telephone lines in the city were broken and in many instances the poles were weighed down. All telegraph-wires were down on the Chicago and Alton railroad northward to Bloomington and southward to Collinsville; on the Illinois Central, northeast to Gilman; on the Ohio and Mississippi, southeast to Pana; on the Wabash railroad, west to Kansas and eastward beyond the state line. Very great damage was done to the ornamental trees in Oakridge cemetery.

Lincoln, Logan county, 3d: there is scarcely a tree left standing in this city, many of which were snapped off short, while thousands are stripped of their branches. The sidewalks were rendered impassable by the fallen debris. Nearly all of the telephone-wires were prostrated, the poles in many places being broken. The few wires not broken were covered with a coating of ice two inches in diameter. Great damage has been done to fruit and ornamental trees. Several days will be required to remove the debris from the streets and to repair telegraph and telephone lines. Great destruction to forests is reported from the surrounding country.

White Hall, Green county, 4th: great damage has been done to orchards and nurseries in this vicinity. The telegraph and telephone are down and trains delayed.

Vandalia, Fayette county, 4th: the recent sleet-storm is without precedent in this section. All objects are covered with ice.

Champaign, Champaign county, 3d: the late sleet-storm has been the severest ever known. The damage to fruit and shade trees is very great, many of which are entirely ruined. All telegraph and telephone-wires in the city and nearly all of the poles were broken.

Mattoon, Coles county, 4th: all exposed objects are weighed down or broken by ice. Thousands of trees are either stripped of their branches or broken down; the telegraph-wires are down in all directions, and trains are run with great difficulty. Many business houses have been damaged by ice and water, and business has been greatly interrupted.

Carrollton, Green county, 4th: the limbs of trees and the telegraph-wires are covered with ice one inch thick. About twenty-five of the telegraph-wires were broken in this city.

Atlanta, Logan county, 3d: all trees and shrubbery are loaded down with ice, many of them are broken and entirely destroyed. Some of the best orchards in the county have been ruined, and stock has suffered to a great extent.

Jerseyville, Jersey county, 4th: everything is heavily coated with ice, many trees have been broken and buildings damaged. The telegraph lines are down, and trains delayed.

Clinton, De Witt county, 4th: it is impossible to accurately estimate the damage to shade and ornamental trees, and orchards in this vicinity, but is considered to be not less than $100,000. Telegraph and telephone-wires are down, but the damage in that particular is comparatively slight.

Bloomington, McLean county, 3d: the city is covered with a sheet of ice and much damage has been done to forest and ornamental trees and to the orchards. Trains on the railroads are run with great irregularity.

Indiana.—Logansport, 3d: the sleet-storm has stopped nearly all trains, and no mails arrive at, or depart from the city. The telegraph and telephone-wires are all down, and great damage has been done to fruit and shade trees. The storm is considered the most destructive that has occurred here for several years.

Kansas.—Wellington, Sumner county: ice formed on all exposed objects on the 2d, and remained until the 8th. Fears are entertained that the peach buds have been killed.

Missouri.—Saint Louis, 2d: great damage has been done by the sleet-storm, to the telegraph-wires in this city. The sidewalks are covered with ice, rendering them very dangerous to pedestrians.

Mexico, Audrian county, 4th: for thirty-six hours a very severe snow and sleet-storm has prevailed, causing great suffering to the poor classes of inhabitants and to stock. The storm is considered the severest of the kind since 1840.

New York.—Buffalo, 3d: the snow turned to rain at 1.35 a. m., which continued freezing as it fell. Ice accumulated to considerable thickness on all objects. The telegraph and telephone-wires were generally prostrated. Great damage resulted to various kinds of trees.

Ohio.—Sandusky, 3d: all exposed objects are covered with ice from one to one and one-half inches thick. None of the telegraph lines running into the city could be worked after 8 a. m. The telephone company had all of their lines broken, and many of the poles were prostrated. For a distance of ten squares every pole fell at once, causing a noise which was heard at points more than one mile distant. Over three hundred wires were broken, entailing a loss of $5,000. Much damage was also done to trees and shrubbery.

Toledo, 2d: Sleet and rain storm, covering the ground with slush from one to ten inches deep. All travel seriously impeded; trains arrive from six to ten hours late; telegraphic communication interrupted. The rain continued during the 3d, and was followed by freezing weather on the 4th, when all objects were covered with ice, resulting in much damage to shade and ornamental trees.

Cleveland, 3d: severe sleet-storm, causing serious interruption to railroad travel. Telegraph-wires and trees are broken down in all directions.

Pennsylvania.—Erie, 3d: many of the telegraph and telephone-wires in this city were broken by the accumulation of ice.

WINDS.

The prevailing direction of the winds for the month of February, 1883, at the Signal-Service stations, are shown on chart iii., by arrows flying with the wind. In the lake region and in New England, the prevailing winds are generally from the west; on the middle Atlantic coast, from the northwest; on the North Carolina coast, from the northeast, except southwest at Wil-